SPAWAR
Systems Center
San Diego

COMMUNICATION & INFORMATION SYSTEMS DEPARTMENT Presentation

CODE 85 BRIEF

Electromagnetics and Advanced Technology Division

Electromagnetics and Advanced Technology Division

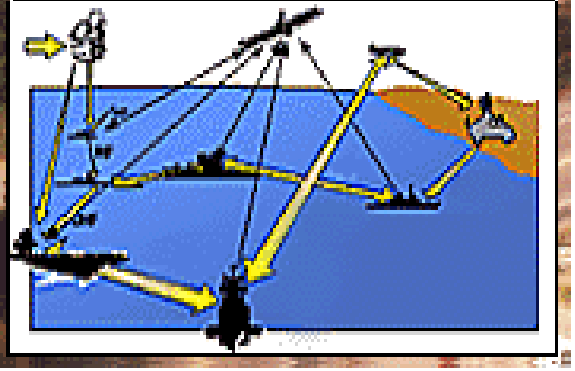
Applied Electromagnetics

Modeling and Analysis

Antenna and Electromagnetic Engineering

Advanced Technology

Signal Processing



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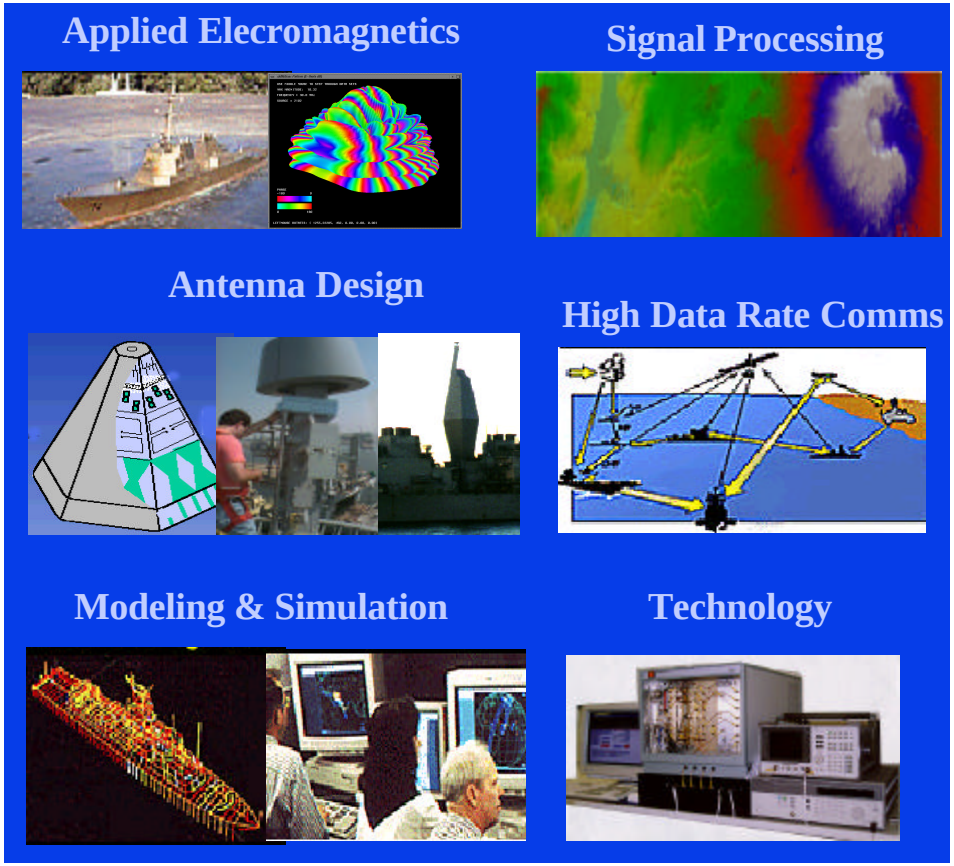
Electromagnetics & Advanced Technology

Thrusts

- Applied Electromagnetics & Optics
- Antennas
- Modeling and Simulation
- Signal Processing
- High Data Rate Communications
- Technology



Providing antenna design, interference mitigation, cancelers, modeling & simulation, testing. Electromagnetic and electro-optic technology applications: lasers, signal & image processing, manufacturing technology, radar transponders, etc.

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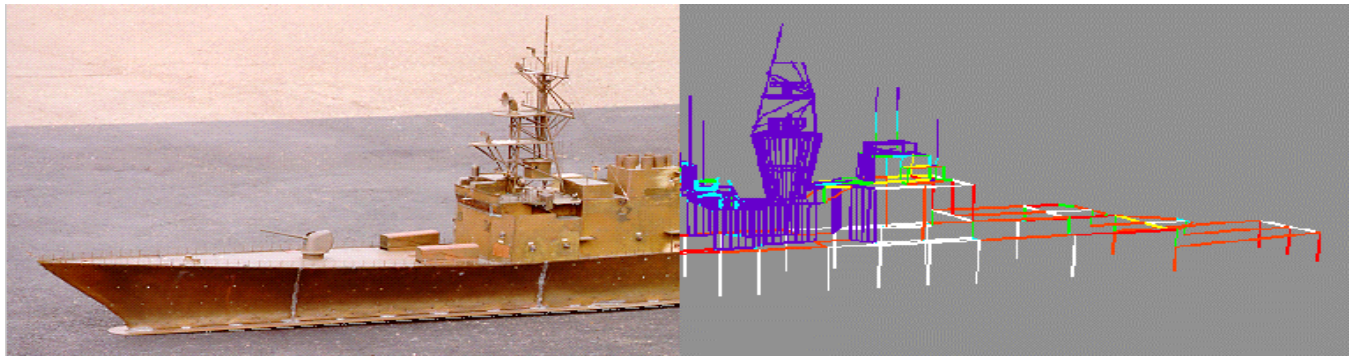
ELECTROMAGNETICS

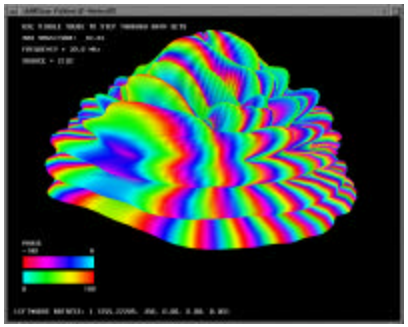
Physical Modeling

Computer Modeling

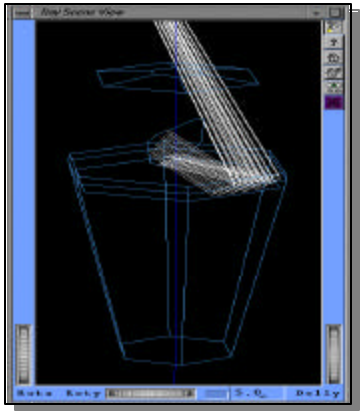


Antenna Pattern Range

Radiation Patterns



Time Domain Range



Scattering Effects

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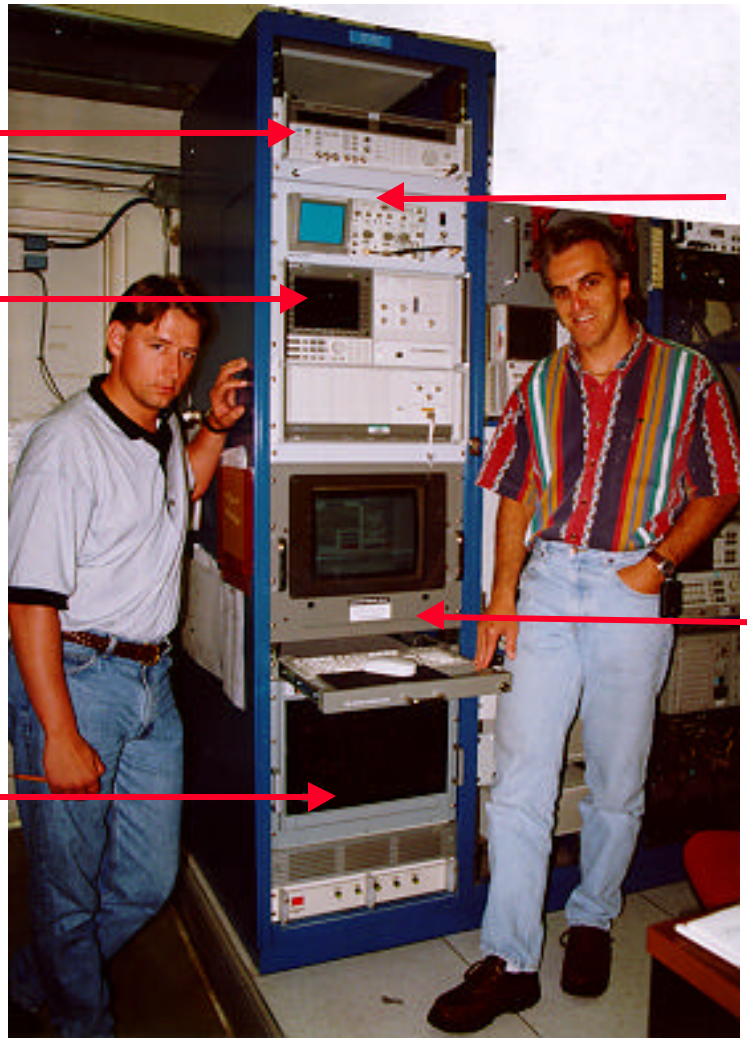
APPLICATION OF EM TECHNOLOGY

Universal Radar Moving Target Transponder
(URMTT)

SIGNAL GENERATOR

SPECTRUM ANALYZER

URMTT (VXI)



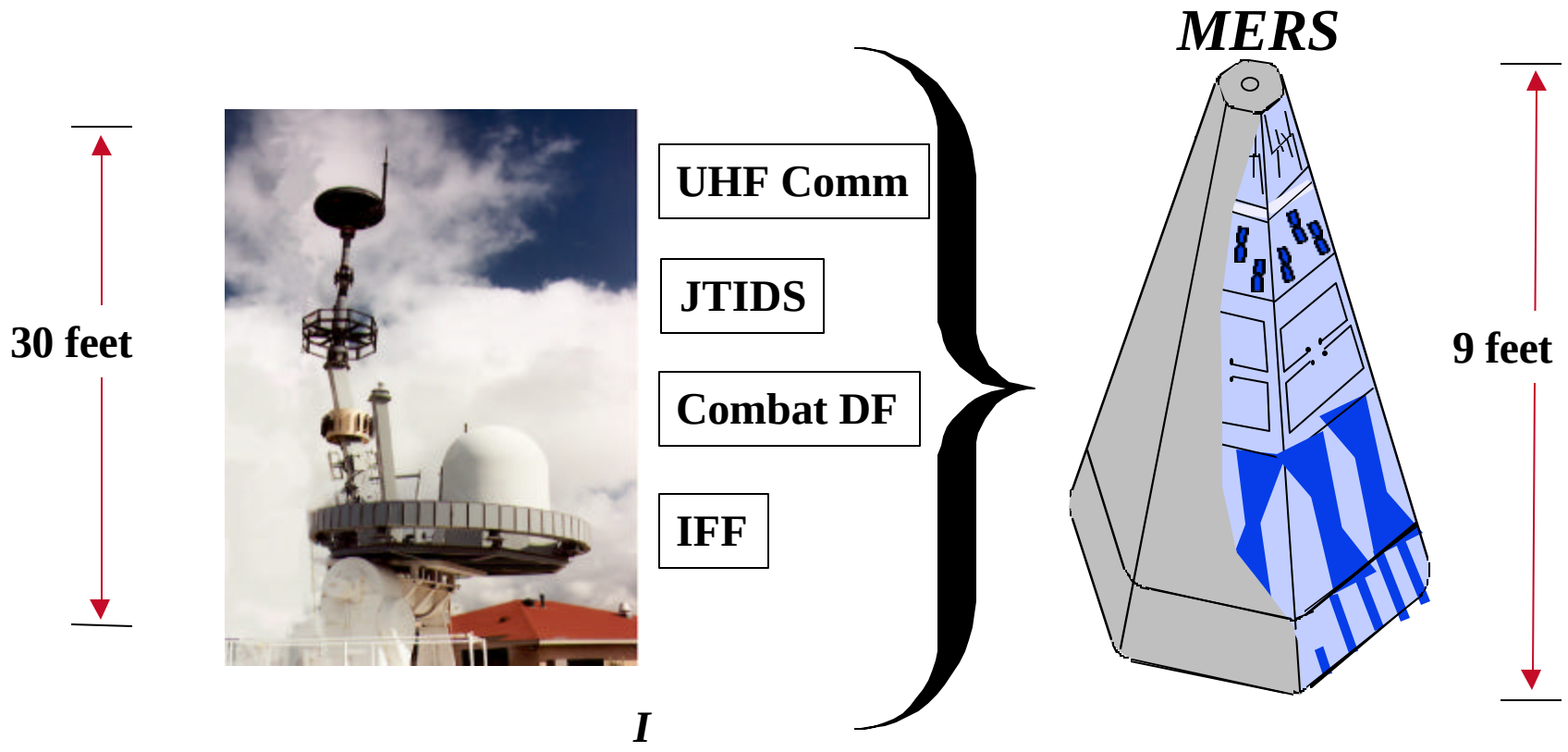
O SCOPE (OPTIONAL)

OPERATE VIA:
- **MONITOR**
- **KEYBOARD**
- **MOUSE**
- **MENU DRIVEN**
- **WINDOWS ENVIRONMENT**

SESEF URMTT INSTALLATION, SAN DIEGO

ANTENNA DESIGN & MODELING

- ***Multifunction Electromagnetic Radiating System (MERS) ATD***



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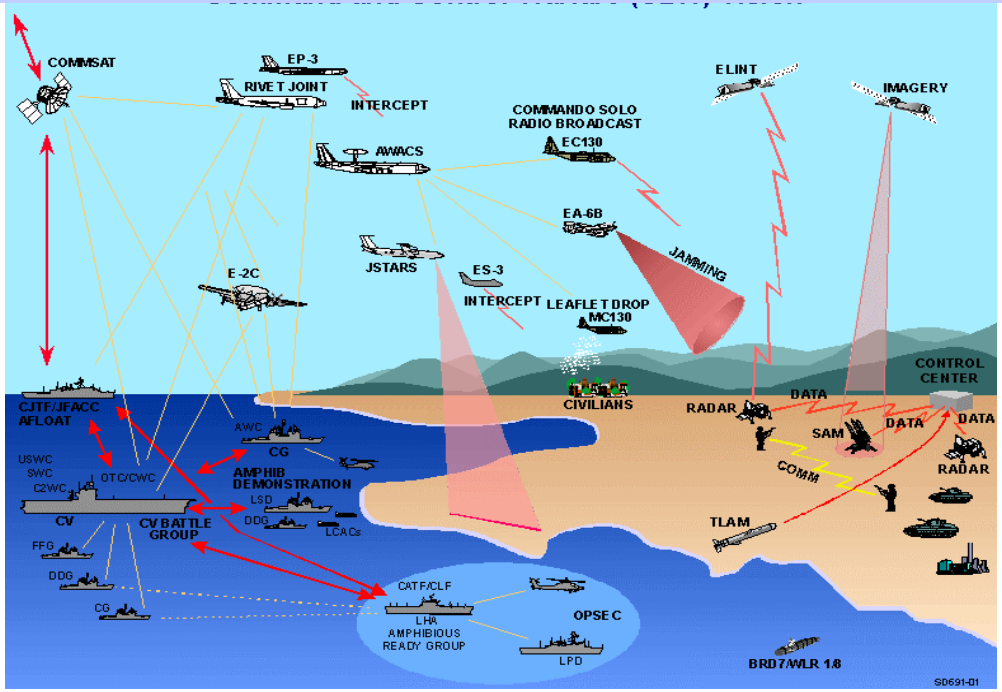
Modeling and Analysis



- **Analysis support to**
  - **Arsenal Ship**
  - **Fleet Battle Exercise (B)**
  - **COMPASS**
  - **BMDO/PEO- TAD**
  - **Joint Mission Architectures**

- **Modeling and Simulation (M&S)**
  - **BMDO/PEO TAD**
  - **Naval Simulation System**
  - **EADSIM**

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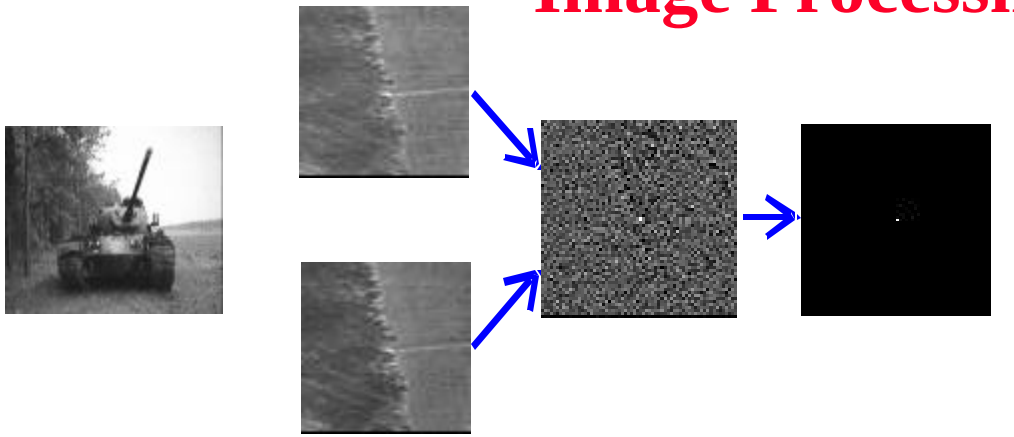
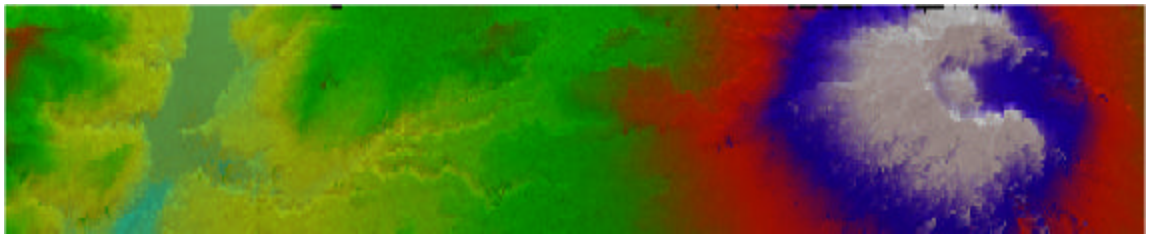
SIGNAL PROCESSING

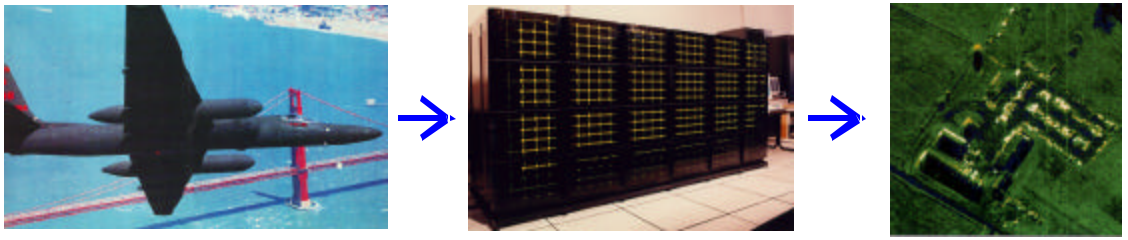
Image Processing Capabilities



Multispectral
Electro Optical/ Infrared



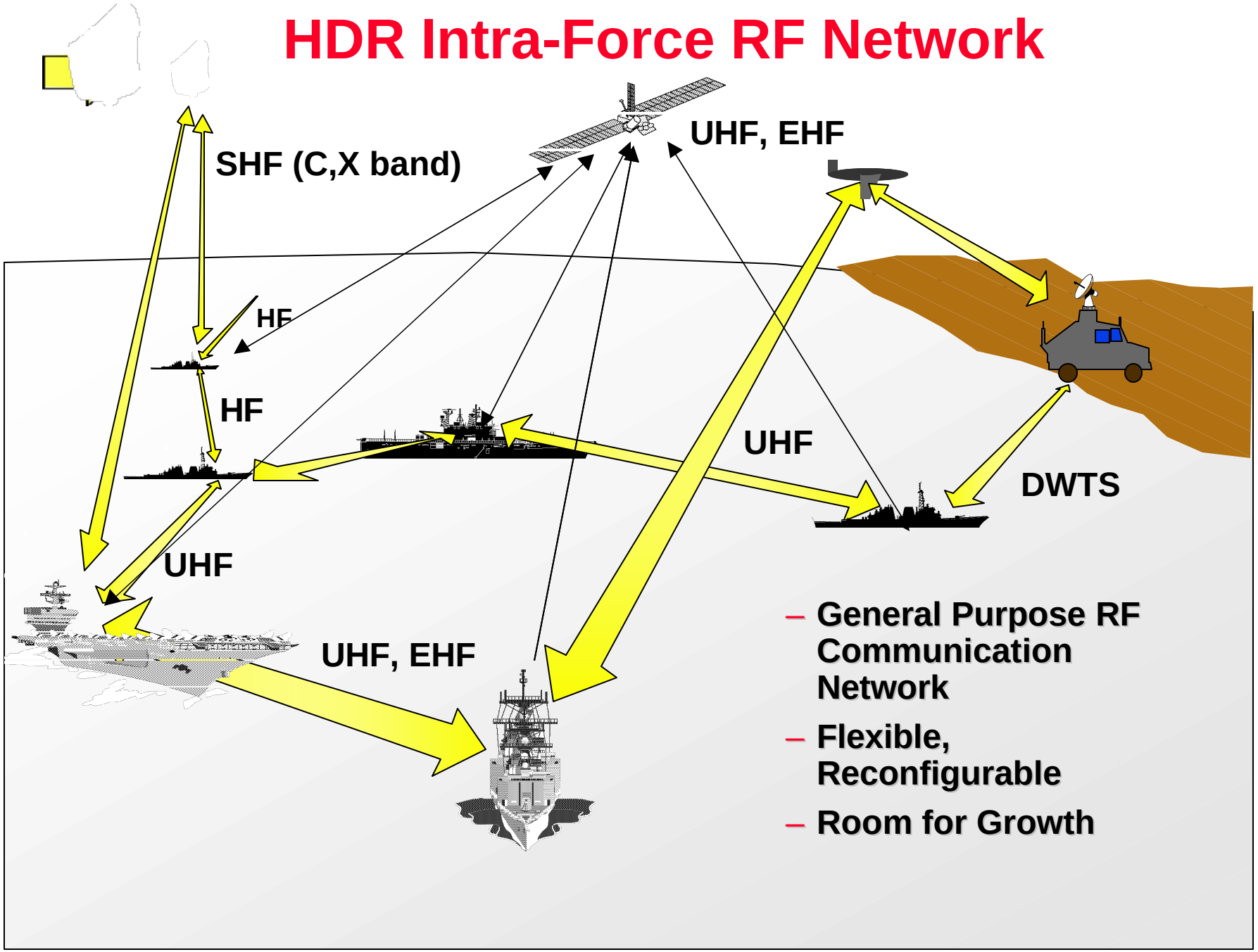
IFSAR
Interferometric
SAR



ASARS2
(Advanced SAR
System)
on Paragon

HIGH DATA RATE COMMUNICATIONS

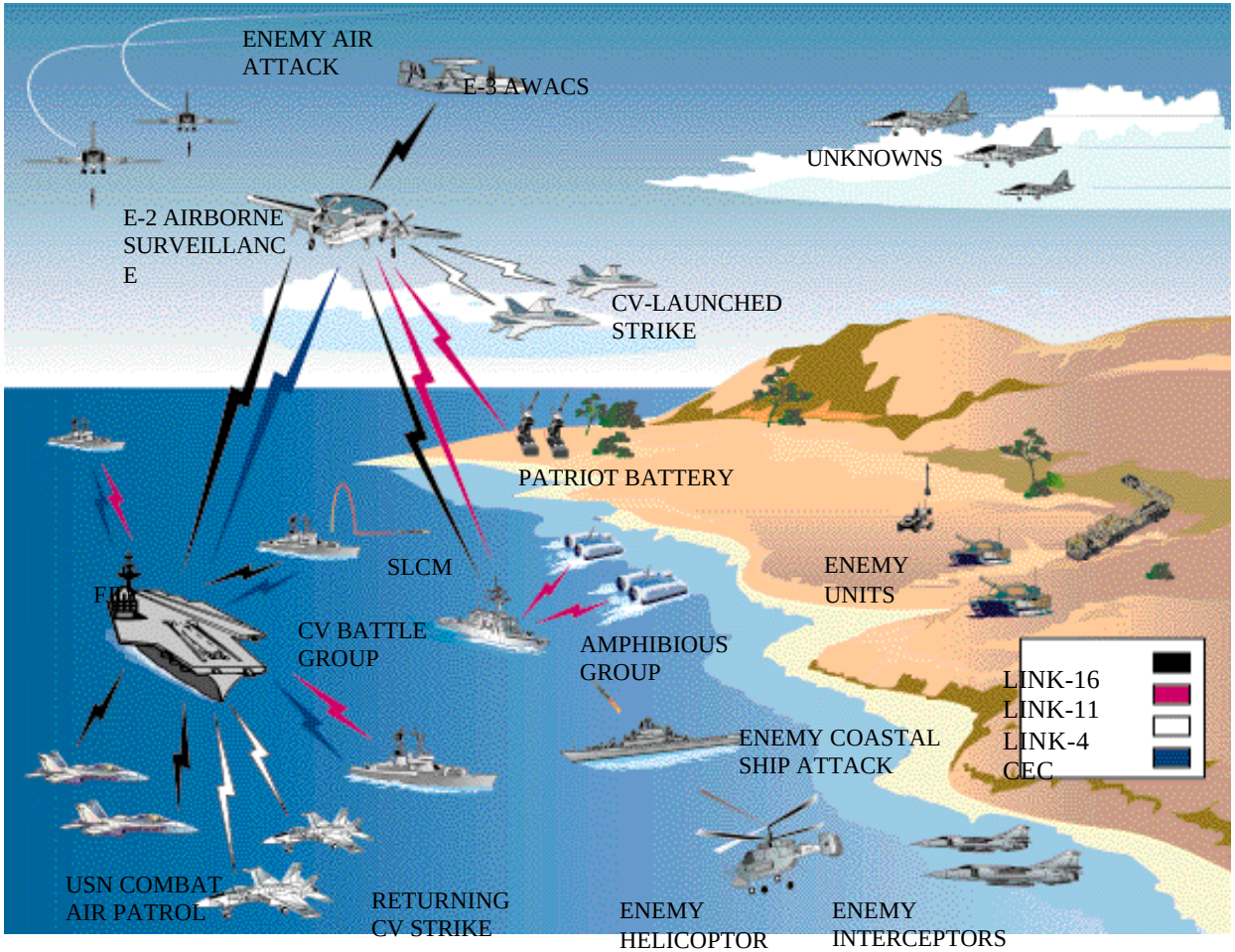
HDR Intra-Force RF Network



- General Purpose RF Communication Network
- Flexible, Reconfigurable
- Room for Growth

TECHNOLOGY

CEC Concept of Operations



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TECHNOLOGY

SOLDIER 911 - KOREA

DEVELOP, FIELD, AND DEMONSTRATE:

GEOLOCATION /FLIGHT FOLLOWING SYSTEM FOR US ARMY KOREA

DEMONSTRATE:

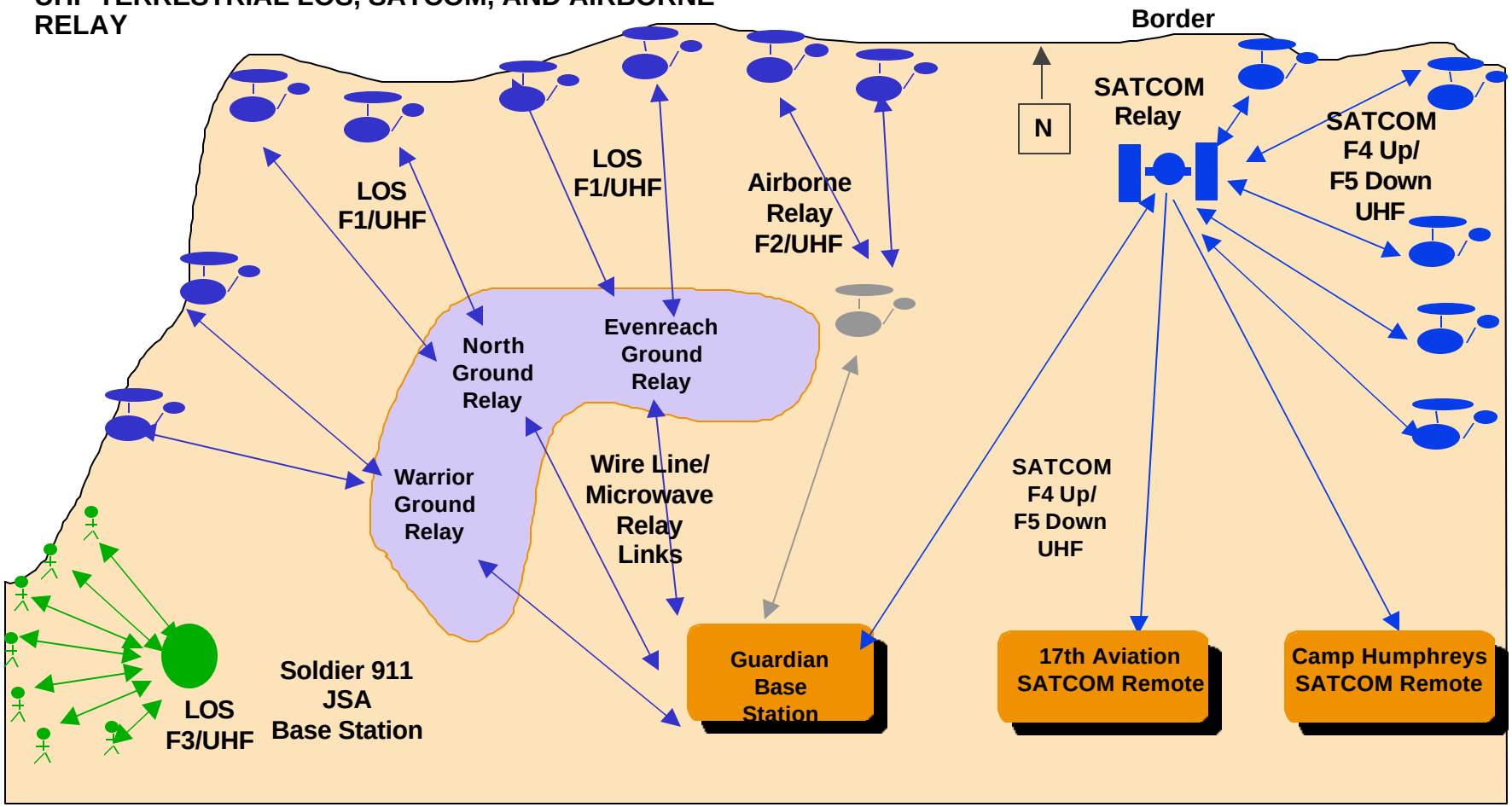
COMMUNICATION CONNECTIVITY VIA UHF TERRESTRIAL LOS, SATCOM, AND AIRBORNE RELAY

PROVIDE:

SITUATIONAL AWARENESS AND BORDER WARNING ALERT

EMERGENCY 911 MESSAGE PRECEDENT

EXCHANGE OF TEXT / CANNED MESSAGES.



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TECHNOLOGY

OPTICAL TARGET CHARACTERIZATION

NASA Black Brant
Aerodynamic Heating &
Plume Signature (MWIR)

Apply state-of-the-art active and passive optical sources, sensors and techniques to develop and demonstrate innovative scientific concepts relating to BMDO missions:

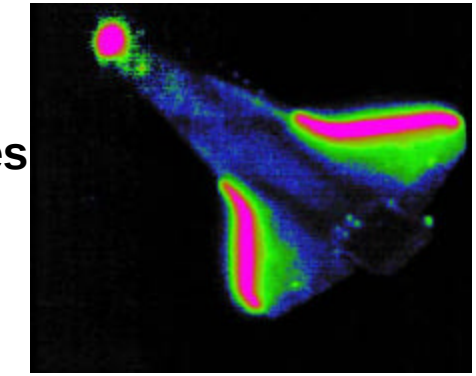
- Booster typing
- Tracking
- Target discrimination
- Aimpoint selection
- Kill assessment

KTM Mobile Mount @ Dugway
Proving Grounds, UT during
Sensor Fusion Experiment

Support research in:

Mobile Optical Mount
(NRL)

- Passive UV† - LWIR§ imaging
- Active plume / hardbody signatures
- Laser radar / active imaging
- Sensor data fusion
- Laser Communications



Night Coverage of Space
Shuttle Landing (MWIR‡)

* ISTEF: Innovative Science & Technology Experimentation Facility
† UV: Ultraviolet
§ LWIR: Long Wavelength InfraRed
‡ MWIR: Mid-Wavelength InfraRed